

SECTION 10

TILE WORK, CERAMIC; FOR FLOORS AND WALLS

10-01 SCOPE: The work covered by this section of the specifications consists in furnishing all plant, labor, equipment, appliances and materials not furnished by the Government, and in performing all operations in connection with the installation of ceramic tile work for floors and walls, complete, in strict accordance with this section of the specifications and the applicable drawings, and subject to the terms and conditions of the contract.

10-02 APPLICABLE SPECIFICATIONS: The following specifications, of the issues listed below but referred to thereafter by basic designation only, form a part of this specification:

a. Federal Specifications:

SS-A-281a	Aggregate; (for) Portland-Cement Concrete
SS-C-192a	Cements; Portland
SS-L-351	Line; Hydrated (for) Structural Purposes
SS-T-308	Tile, Ceramic; Floor, Wall and Trimmers
TT-C-598	Compound, Calking; Plastic (for Masonry and Other Structures)
UU-P-147a	Paper; Building, Waterproofed

b. U. S. Department of Commerce Publication:

R61-44	Simplified Practice Recommendation: Clay Tile for Floors and Walls
K300	Tile Manufacturers' Association, Inc., Basic Specification for Tile Work

10-03 GENERAL: All containers shall be delivered to the site with labels intact and seals unbroken. Containers shall not be opened until inspected by the Contracting Officer.

10-04 MATERIALS:

a. Building paper shall conform to the requirements of Federal Specification UU-P-147, Type 1, Class A.

b. Calking compound shall conform to the requirements of Federal Specification TT-C-598.

c. Ceramic mosaic floor tile: Tile floors shall be porcelain-type ceramic mosaic tile, not less than 1/4 inch thick, with plain edges, conforming to Federal Specification SS-T-308, Type I, Class A, Form 1 (unglazed).

(1) Shape and size: For all areas not otherwise specified, ceramic floor tile shall be laid in a straight line design, having all units of $3/4$ by $3/4$ inch or 1-9-16 by 1-9/16 inches, as selected by the Contracting Officer.

(2) Color of ceramic floor tile shall be as noted on the drawings or as selected by the Contracting Officer.

d. Wall tile for facings and vainscots shall be nominal 4-1/4-inch squares, not less than 5/16 inch thick, shall have a non-vitreous body and glazed surface with a matte glaze finish, and shall conform to Federal Specification SS-T-308. Wall tile shall include all stops, returns, trimmers, caps, and other special shapes required for sills, jambs, and recesses or offsets to produce a complete and neatly finished installation. Color of glazed wall tile shall be as noted on the drawings or as selected by the Contracting Officer.

e. Hydrated lime shall conform to the requirements of Federal Specification SS-L-351, type M or type F.

f. Portland cement, including white cement, shall conform to the requirements of Federal Specification SS-C-192, type 1.

g. Aggregate shall be as specified in the section on CONCRETE of these specifications. Beach sand may be used subject to the approval of the Contracting Officer.

h. Water shall be clean and free from injurious amounts of oil, acids, soluble salts and organic impurities.

10-05 SAMPLES: The following samples shall be submitted to the Contracting Officer for approval before proceeding with the tile work:

Two panels of floor tile about 12 inches square for each color.

Two panels of wall tile, four tiles to each panel, for each color to be used, showing the two extremes in color.

Two pieces of each of the tile shapes to be used.

10-06 INSTALLATION OF FLOOR TILE: Floor tile operations occurring in spaces requiring both floor and wall tile shall not start until wall tile setting has been completed.

a. Laying out work: Prior to spreading the setting bed the lines of borders, if any, shall be established, and the field work centered in both directions to permit the pattern to be laid with a minimum of cut tiles. Floors without borders shall be laid from the center lines outward and adjustments shall be made at the walls.

b. Setting-bed mortar shall be composed of one part portland cement and 3 parts fine aggregate to which not more than 5 percent of hydrated lime, by volume of the cement, may be added, mixed with as little water as will produce a workable mass.

c. Installation of setting bed: The concrete subfloor shall be thoroughly cleaned and then moistened but not soaked, after which dry cement shall be sprinkled over the surface and the mortar for the setting bed shall be spread on the concrete, tamped to assure a good bond over the entire area, and screeded to provide a smooth and level bed. The thickness of the setting bed shall be such that the finished tile surfaces shall be to grade and line indicated on the drawings but in no case less than 3/4 inch.

d. Laying ceramic mosaic tile floor: After the setting bed has set sufficiently to be worked over, dry cement shall be sprinkled over the surface and the tile laying begun. Straightedges shall be set to the lines established and reset at suitable intervals to keep the joints parallel over the entire area. The sheets of ceramic mosaic tile shall be laid to the straightedges, with the joints between sheets the same as the joints between the tiles on the sheets, after which the tile shall be tamped solidly onto the bed, using wood blocks of such size as to ensure solid bedding free from depressions. The tile lay-out shall eliminate cut tile to the greatest extent possible. Fractional changes in dimensions without varying the uniformity of joint widths will be permitted. Where required, tile shall be cut with a suitable cutting tool and rough edges shall be rubbed smooth. Cut-tile misfits shall be replaced with properly cut tile.

e. Grouting: When the setting bed has hardened sufficiently, the joints shall be completely filled with grout by screeding and brushing the grout mix over the tile. All excess grout shall be removed. Grout for joints shall be a thick soupy mix of neat cement.

10-07 INSTALLATION OF WALL TILE:

a. General: Tiles shall be thoroughly soaked in clean water for at least one hour before setting.

b. Scratch coat for application as a foundation coat shall be not less than 1/4-inch thick and shall be composed of one part cement to 3 parts fine aggregate, with the addition of 10 percent hydrated lime by volume of the cement used. While still plastic, the scratch coat shall be deeply scored or scratched and cross scratched. The scratch coat shall be protected and kept reasonably moist during the seasoning period. All mortar for scratch and float coats shall be used within one hour after mixing. The retamping of partially hardened mortar will not be permitted. The scratch coat shall be applied not more than 48 hours nor less than 24 hours before starting the setting of tile.

c. Float coat: The float coat shall be composed of one part cement, one part hydrated lime and 3-1/2 parts fine aggregate. The float coat shall be brought flush with screeds or temporary guide strips so placed as to give a true and even surface at the proper distance from the finished face of the tile.

d. Setting wall tile: Wall tile shall be set by troweling a skim coat of neat portland cement mortar on the float coat or applying a skim coat to the back of each tile unit and immediately floating the tile into place. Joints shall be straight, level, perpendicular, and of even width not exceeding 1/16 inch. Reinscots shall be built of full courses which may extend to a greater height, but in no case more than 1-1/2 inches lower than the specified or figured height. Vertical joints shall be maintained plumb for the entire height of the tile work.

e. Grouting: All joints in wall tile shall be grouted full with a plastic mix of neat white cement immediately after a suitable area of tile has been set. The joints shall be tooled slightly concave and the excess mortar shall be cut off and wiped from the face of tile. Any interstices or depressions in the mortar joints after the grout has been cleared from the surface shall be roughened at once and filled to the line of the cushion edge before the mortar begins to harden. Tile bases or coves shall be solidly backed with mortar. All joints between wall tile and plumbing or other built-in fixtures shall be made with a light-colored caulking compound. Immediately after the grout has had its initial set, tile wall surfaces shall be given a protective coat of a non-corrosive soap or other approved method of protection.

f. Accessories: Porcelain-type accessories shall be installed in the approximate locations indicated on the drawings or where directed by the Contracting Officer. Recessed accessories where shown on drawings or specified in connection with plastered walls shall be neatly installed and the plaster repaired around the accessories if required.

g. Calking: Non-staining calking compound shall be used at all joints between built-in fixtures and the tile work and at the top of ceramic tile bases, to insure a completely waterproof job. Internal corners shall be calked prior to application of corner bead.

10-08 CLEANING: Upon completion, all tile floor and tile wall surfaces shall be thoroughly cleaned in a manner recommended by the manufacturer so as not to mar the glazed surface of the tile.

10-09 PROTECTION: Not less than 48 hours shall elapse after installation of floor tile before ordinary foot traffic may be permitted. Before foot traffic is permitted over finished tile floors, the floors shall be covered with building paper. Board walkways shall be laid on floors that are to be used continuously as passageways by workmen. Tiled floors to be trucked over shall have suitably constructed continuous-plan runways of required width installed over the building paper. Cracked, broken or damaged tiles shall be removed and replaced prior to final acceptance.